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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,226	01/23/2002	Shu Yuen Ron Hui	12364.28USUI	6884
23552	7590	06/02/2005	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			VU, DAVID HUNG	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,226

Applicant(s)

HUI ET AL.

Examiner

David Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/10/04
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15, 16 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-13, 15, 16 and 19-24 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/10/04, 04/28/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 19-20 and 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Paul et al (hereinafter Paul) of record, U.S. Pat No 5,677,602

Paul discloses the claimed invention including inverter circuit with transistors 106,108, resonance circuit 600, wherein if ignition fails the ballast is disable (e.g., through a timing circuit) and ignition is attempted again by controller 200 after a preset time interval; an ignition voltage is generated in short durations and a voltage threshold 210 is established for safety considerations during the ignition process; when ignition succeeds, lamp current measured through current detector increases above a reference level and the ballast operates at high switching frequency (figures 1-2, 4; column 9, lines 1-26 and column 10, lines 47-64). Paul also discloses the inverter circuit operated at a low frequency during an ignition step and high frequency during steady state, column 8, lines 65+, column 9, lines 1-26.

4. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Ribarich et al (hereinafter Ribarich) of record, U.S. Pat No 6,316,887.

Ribarich discloses the claimed invention including inverter circuit with transistors IRFP22N50A, resonance circuit including at least the 20nanoF capacitor, wherein if ignition fails the ballast is disable by IC 2 and ignition is attempted again after a preset time interval; an ignition voltage is generated in short durations and a voltage threshold is established for safety considerations during the ignition process (figure 1; column 3, lines 31+, column 4, lines 1-24, claims 1, 4-6).

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Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al (hereinafter Sugita) of record, U.S. Pat No 6,054,815.

Sugita essentially discloses the claimed invention including inverter circuit including switches 50-51, resonant circuit 7, ignition capacitor 54 immediately across lamp 6 (figure 1, column 3, lines 57+, column 4, lines 8-17). Figure 11 shows ignition capacitor 54 as directly provided between the resonance circuit and the lamp. Figure 1 does not show capacitor 54 is provided "directly" between the resonance circuit and the lamp. However, position the capacitor directly between the resonance circuit and the lamp would have been consider obvious to one of ordinary skill in the lighting art. It would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have repositioned the capacitor directly between the resonance circuit and the lamp since it has been held that rearranging part of an invention involves only routine skill in the art In re Japikse, 86 USPQ 70. The function of the capacitor, i.e., igniting the lamp, does not change by this repositioning.

Sugita does not explicitly disclose a high intensity discharge (HID) lamp. However, Sugita does suggest (column 7, lines 22-24) any other discharge lamps could be used. Accordingly, an obvious modification would have provided the Sugita et al reference with an HID lamp. Thus, it would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have replaced the discharge lamp in the Sugita reference with an HID lamp since this would have been an obvious substitution of equivalent lamps as suggested in the Sugita et al reference.

Regarding claim 3, figure 3 shows switches 50-51 and means 8-9 for varying the switching frequency.

7. Claims 4-11, 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita in view of Paul et al (hereinafter Paul) of record, U.S. Pat No 5,677,602.

Sugita as discussed from the above, essentially discloses the claimed invention but fails to explicitly disclose the inverter circuit operated at a low frequency during an ignition step and high frequency during steady state. Paul discloses an inverter circuit operated at a low frequency during an ignition step and high frequency during steady state and controller 200, see figures 1-2, 4, column 5, lines 50+, column 8, lines 65+, column 9, lines 1-26, column 11, column 12, lines 1-36. It would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have provided the Sugita reference with the inverter circuit operated at a low frequency during an ignition step and high frequency during steady state; thus, stable lamp operation would have been realized.

Regarding claim 5, the Paul reference discloses controller 200 for varying the inverter switching frequency for the purpose of power regulating.

Regarding claim 6, the Paul reference discloses means 500, 124, 400 for monitoring lamp power and the inverter switching frequency is varied in response to an output from the current controller 200.

Regarding claim 8, column 9, lines 1-15 and 40-59 of the Paul reference disclose when the lamp starts, output of the current detector 500 increases and the ballast operates at a high switching frequency.

Regarding claims 7, 9, column 9, lines 1-26 and column 10, lines 47-64 of the Paul reference do disclose if ignition fails the ballast is disable (e.g., through a timing circuit) and ignition attempts again by the controller after a preset time interval; an ignition voltage is generated in short durations and a voltage threshold 210 is established for safety considerations during the ignition process.

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Regarding claims 10-11, the Paul reference discloses control circuit 200 (column 9, lines 17-25) will not receive signals from current detector 500 in case of an open or short-circuit (lamp failing to start or being removed); control circuit 200 also functions as a short or open circuit detector, detecting a dc link current through current detector 500 or resistor 124 and comparing with a reference value at input 606.

Regarding claim 13, figure 6(c) of the Paul reference shows control circuit 200 maintains a lamp current at a level higher than a steady state level following ignition.

8. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita and Paul in view of Stack, U.S. Pat No 6,222,322.

Sugita and Paul as discussed from the above, essentially disclose the claimed invention but fail to explicitly disclose the short and open circuit detecting means is not activated during a lamp ignition step. Stack discloses means C12 in ballast protection circuit 112 (figure 4; column 9, lines 24-40). It would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have provided the Sugita and Paul combination with the delay means as it would have provided the ballast with means for delaying the activation of short and open circuit detecting means.

9. Claims 15-16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paul in view of Stack.

Paul as discussed from the above, essentially disclose the claimed invention but fail to explicitly disclose the short and open circuit detecting means is not activated during a lamp ignition step. Stack discloses means C12 in ballast protection circuit 112 (figure 4; column 9, lines 24-40). It would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have provided the Paul reference with the delay means as it would have provided the ballast with means for delaying the activation of short and open circuit detecting means.

Control circuit 200 also functions as a short or open circuit detector, detecting a dc link voltage through current detector 500 or resistor 124 and comparing with a reference value at input 606.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ribarich in view of Paul.

Ribarich as discussed from the above, essentially disclose the claimed invention but fail to explicitly disclose the inverter circuit operated at a low frequency during an ignition step and high frequency during steady state. Paul discloses an inverter circuit operated at a low frequency during an ignition step and high frequency during steady state and controller 200, see figures 1-2, 4, column 5, lines 50+, column 8, lines 65+, column 9, lines 1-26, column 11, column 12, lines 1-36. It would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have provided the Ribarich reference with the inverter circuit operated at a low frequency during an ignition step and high frequency during steady state; thus, stable lamp operation would have been realized.

Allowable Subject Matter

11. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

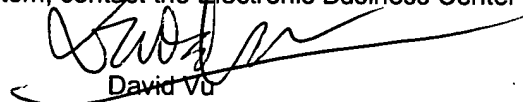
Note that this Office Action is also based on the Examiner's Amendment which reflects agreements (i.e., changes to claim 1) between applicant's representative Mr. Bryan Wong and the Examiner on August 4, 2004. Applicant is advised to formally incorporate the changes to the claim in the next communication.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Vu whose telephone number is (571) 272-1831. The examiner can normally be reached on M-F 8am-430pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Vu
Primary Examiner
Art Unit 2828

dv